



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/735,270

12/12/2003

James B. Piket

33692.03.1429

3597

64588

7590

04/29/2009

CONTINENTAL AUTOMOTIVE SYSTEMS  
TEMIC AUTOMOTIVE OF NORTH AMERICA, INC.  
21440 WEST LAKE COOK ROAD  
PATENTS AND LICENSES, 7TH FLOOR  
DEER PARK, IL 60010

EXAMINER

JAMAL, ALEXANDER

ART UNIT

PAPER NUMBER

2614

MAIL DATE

DELIVERY MODE

04/29/2009

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/735,270	<b>Applicant(s)</b> PIKET ET AL.	
	<b>Examiner</b> ALEXANDER JAMAL	<b>Art Unit</b> 2614	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 16 January 2009.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☐ Claim(s) \_\_\_\_\_ is/are pending in the application.  
     4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-17 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
     a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                       | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

### ***Response to Amendment***

1. Based upon the submitted amendment, the examiner notes that claims 1,5,9,13 have been amended.and claims 18-23 are cancelled.
2. Examiner notes that applicant's remarks pages 13-14 have admitted the entire selection/amplification of audio signals in a car as known prior art.
3. Examiner notes that the various 'logic' elements in the claims are being read as portions of software. The examiner contends that the prior art systems of Sih and Takahashi will function in the same manner and comprise software of which portions may arbitrarily be designated as 'logic areas'. The examiner contends that the 'logic' elements will all function together in order to perform the same functions as claimed by applicant.

### ***Specification***

1. The disclosure is objected to because of the following informalities:

The examiner has considered applicant's response to the objection to the specification but notes that the applicant has not addressed all issues.

Applicant explains that the pre-noise suppression logic outputs uplink data that is based on uplink and downlink data. The uplink data is used by the echo canceller. The examiner contends that this is not a well known process. The known echo canceller

Art Unit: 2614

functions by generating coefficients based on an error signal. Said coefficients are used with the downlink data to produce an echo estimate which is subtracted from the uplink data (to produce an error signal). Applicant's drawings and arguments do not disclose a downlink data signal being used by the echo canceller stage. As such the examiner notes that the specification does not disclose enough information for one skilled in the art to implement the echo cancellers. The specification does not disclose exactly how the signal from the 'pre-noise suppression logic' is used by the echo canceller in order to cancel the echo signal. For the purpose of examination the examiner assumes the drawing/spec is in error and the echo canceller stages do indeed use the downlink data in a known way. The examiner contends that if applicant argues this fact, then examiner contends that applicant's specification does not disclose enough information to implement the described device (112 first paragraph rejection).

2. The following is a quotation of the **second paragraph of 35 U.S.C. 112**:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. **Claims 1-17** rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The examiner notes applicant's arguments page 11, which state that the echo canceller logic effectively performs some of the functions of the first stage of echo cancellation. The claims as amended specifically recite that the "echo canceller

Art Unit: 2614

coefficient logic” receives uplink data that has not been processed by the “noise suppression logic”.

Applicant has assigned arbitrary names to groups of functions, yet the specification is not clear as to exactly which functions are being performed by the named groups. It further is not clear the exact structure of the claimed device, since the device is claimed in terms of named groups of functions (the "noise suppression logic"), and the specification is not clear as to exactly which functions are included in the group. The examiner recommends that applicant claim the device clearly in terms of the well known functional blocks, instead of arbitrarily assigned names for groups of functions as it is not clear exactly what the claimed processing path is.

### ***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. **Claims 1-6,9-11,18-23** rejected under 35 U.S.C. 103(a) as being unpatentable over Applicant’s admitted prior art (Fig. 1), and further in view of Sih (5646991).

As per **claim 1**, Applicant’s admitted prior art discloses an echo canceller circuit comprising (Fig. 1), Pre-Noise suppression logic (blocks 80, and 82), echo canceller

Art Unit: 2614

coefficient logic (inherently comprised in block 84 for the purpose of performing the echo cancel function of block 84). Block 84 further comprises an echo canceller filter (as named in the block) that is coupled to noise suppression logic 20, and must inherently be coupled to the coefficient logic in order to perform the echo canceling function. The prior art discloses noise suppression stage 20 after the second echo cancellation stage. However, applicant's admitted prior art does not show a noise suppression stage coming after the 'pre-noise suppression logic' but before the echo canceller filter.

Sih discloses an acoustic echo canceller (Fig. 5) comprising noise suppressor 146 coupled before the echo canceller. Sih teaches that this filter is a noise remover (suppressor) that removes background noise (Col 9 lines 15-35). It would have been obvious to one of ordinary skill in the art at the time of this application to implement a high pass filter noise suppressor before and after either echo cancellation stage in order to remove a portion of the background noise. Examiner notes that applicant's prior art discloses the use of cascaded noise removing techniques in order to achieve the most noise free signal as possible.

As per **claim 5**, it is rejected as per the claim 1 rejection. Applicant's admitted prior art Fig. 1 discloses adder 82 coupled to second echo canceller 84 that inherently comprises coefficient logic.

As per **claims 9,18,22** it is rejected as per the claim 1 rejection. Applicant's admitted prior art may be implemented in a car audio system that inherently requires a 'housing' to support the circuitry. Applicant's prior art figure 1, when implemented in an

Art Unit: 2614

audio system requires a transceiver for the purpose of generating or interfacing with the uplink and downlink data. The digital filters of applicant's admitted prior art inherently comprise microprocessors with software comprising the method to be performed by the hardware, for the purpose of controlling the digital processing hardware.

As per **claims 2-4,19-21.23** they are rejected as per the claim 9 rejection.

As per **claim 6,11**, it is rejected as per the claim 9 rejection.

As per **claim 10**, the car phones disclosed in applicant's admitted prior art specification inherently comprise wireless transceivers for the purpose of being able to operate in the car.

6. **Claims 13-17** rejected under 35 U.S.C. 103(a) as being unpatentable over Nguyen et al (US20040078104A1) in view of Applicant's admitted prior art (Fig. 1) in view of Sih (5646991), and further in view of Takahashi et al. (6891954).

As per **claim 13**, Nguyen discloses an audio system in a vehicle comprising a playback module Fig. 2 that comprises a cd player and tuner selectably coupled to an output speaker. Nguyen additionally discloses wireless cellphone 182 coupled to the same speaker. However Nguyen does not disclose applying an echo canceller to the phone in the car audio system, or a common output amplifier that is coupled to the outputs from all of the audio sources.

Art Unit: 2614

Applicant's admitted prior art in view of Sih discloses the echo canceller components that may be used in an in-car phone system (specification page 3) as per the claim 9 rejection. It would have been obvious to one of ordinary skill in the art at the time of this application to implement an echo canceller in the in-car phone system of Nguyen for the purpose of canceling unwanted echoes.

Takahashi discloses an in car audio system that comprises output amplifier 24 (Fig. 2) that accepts inputs from multiple input devices 11,12. Takahashi teaches that this configuration will allow for the input devices (such as the tuner or tape deck) to be easily interchanged and the user can easily interface various input devices with varying output amplifiers. (Col 3 lines 15-55). The power amplifier is also implemented in order to provide a signal with enough power to drive the speaker (Col 2 line 60 to Col 3 line 20) It would have been obvious to one of ordinary skill in the art at the time of this application to implement a common buffer amplifier and output speaker amplifier for the purpose of providing a more universal interface and in order to provide enough power to drive the output speaker.

As per **claim 14**, both Nguyen and applicant's admitted prior art disclose cell phones that inherently require wireless transceivers for the purpose of performing the wireless phone functions.

As per **claim 15-17**, they are rejected as per the claim 13 rejection.



Art Unit: 2614

7. **Claims 7,8**, rejected under 35 U.S.C. 103(a) as being unpatentable over Applicant's admitted prior art (Fig. 1) in view of Sih (5646991) as applied to claim 5, and further in view of Takahashi et al. (6891954).

As per **claim 7**, applicant's admitted prior art in view of Sih discloses the echo canceller system that may be implemented in a car phone, including microphone 70, speaker 50, D/A 40, A/D 60, but they do not specify an output amplifier.

Takahashi discloses an in car audio system that comprises output amplifier 24 (Fig. 2) that accepts inputs from multiple input devices 11,12. Takahashi teaches that this configuration will allow for the input devices (such as the tuner or tape deck) to be easily interchanged and the user can easily interface various input devices with varying output amplifiers. (Col 3 lines 15-55). The power amplifier is also implemented in order to provide a signal with enough power to drive the speaker (Col 2 line 60 to Col 3 line 20). It would have been obvious to one of ordinary skill in the art at the time of this application to implement a common buffer amplifier and output speaker amplifier for the purpose of providing a more universal interface and in order to provide enough power to drive the output speaker.

As per **claim 8**, applicant's admitted prior art Fig. 1 discloses microphone 70 and speaker 50.

Art Unit: 2614

8. **Claim 12** rejected under 35 U.S.C. 103(a) as being unpatentable over Nguyen et al (US20040078104A1) in view of Applicant's admitted prior art (Fig. 1) in view of Sih (5646991) as applied to claims 9 and 10, and further in view of Lau et al. (6122506).

As per **claim 12**, Nguyen discloses an audio system in a vehicle comprising a playback module Fig. 2 that comprises a cd player and tuner selectably coupled to an output speaker. Nguyen additionally discloses wireless cellphone 182 coupled to the same speaker. However Nguyen does not disclose applying an echo canceller to the phone in the car audio system, or location hardware and software implemented with the cellular phone..

Applicant's admitted prior art in view of Sih discloses the echo canceller components that may be used in an in-car phone system (specification page 3) as per the claim 9 rejection. It would have been obvious to one of ordinary skill in the art at the time of this application to implement an echo canceller in the in-car phone system of Nguyen for the purpose of canceling unwanted echoes.

Lau teaches a combine cell phone and GPS system with microprocessor (which inherently comprises software to perform the phone and GPS functions (ABSTRACT). It would have been obvious to one of ordinary skill in the art at the time of this application to implement a GPS function in the phone of Nguyen for the advantage (inherent to a GPS system) of providing the user with location monitoring.

### **Response to Arguments**

**1.** Applicant's arguments with respect to **claims 1-17** have been considered but are not persuasive.

As per applicant's argument that the objection to the specification was explained, the examiner notes that applicant has still not disclosed how the second stage echo canceller derives an echo estimate without receiving a downlink signal. The applicant states that the downlink data is used by the second echo canceller stage but it is not. There are no details in the specification of an adaptive algorithm used that will generate an echo estimate without receiving the downlink signal (from which the echo estimate will be based off of). The only inputs being received by the second echo canceller coefficient logic stage 218 (Fig. 4) are the up-link signal, and the uplink signal after the echo cancellation performed by the first echo canceller (part of the pre-noise suppression block).

The examiner additionally notes that applicant is claiming a set of functional blocks in relation to a 'noise suppressor'. This is an overly broad term that any type of noise filter could be read as. The examiner contends it is obvious to implement noise suppressing stages at every point in a signal processing system in order to reduce noise (such as filtering out noise that is outside of the frequency band of the uplink/downlink signals being processed). The examiner recommends that applicant more clearly specify exactly what the noise suppressing stage is doing in order to read over the obvious step of implementing noise filtering anywhere in a

Art Unit: 2614

communications path (the examiner notes that filtering noise outside of the frequency band of the data signals and echo cancellers will not negatively affect the operation of the echo cancellers.

2. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Alexander Jamal whose telephone number is 571-272-7498. The examiner can normally be reached on M-F 9AM-6PM.

Art Unit: 2614

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Curtis A Kuntz can be reached on 571-272-7499. The fax phone numbers for the organization where this application or proceeding is assigned are **571-273-8300** for regular communications and **571-273-8300** for After Final communications.

/Alexander Jamal/

Primary Examiner, Art Unit 2614

Examiner Alexander Jamal

April 29, 2009